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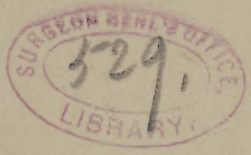

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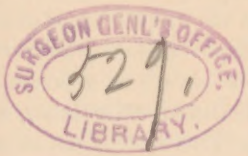

LARYNGISMUS STRIDULUS.*

By WALTER LESTER CARR, M.D.,
NEW YORK.

Laryngismus stridulus is so alarming while it lasts that the physician is called upon to be prompt of judgment and action in dealing with it. Unfortunately, however, with the relief of the acute manifestation, he often fails to guard against the systemic weakness which caused it.

This condition of obstructed inspiration has been given various names by different observers, some of whom have regarded the dyspnœa as a disease in itself. Spasmodic croup, spasm of the glottis, child-crowing, laryngeal asthma, night croup, and the thymic asthma of Kopp—all relate to the immediate state of dyspnœa. Other writers have described it with more latitude, and thus we have mentioned the peculiar species of convulsions of Clarke, inward fits, croup-like convulsions, internal convulsions, and carpo-pedal spasms. The latter names give more accurate designations of the spasmodic character of the disorder, even though they fail in descriptive definition of the croup symptom.

* Read before the Society of the Alumni of Charity Hospital, May 13, 1890.

The ætiology of laryngismus stridulus is regarded as important, and justly so, for the knowledge of its causation is the proper means of preventing its occurrence. The predisposing constitutional origin of the disease is rhachitis—not always of a severe type, such as we find with delayed dentition, craniotabes, and bow-legs, but with the irritable nervous system and catarrhs of mucous surfaces. Children who have been hand-fed, or those whose mother's milk is lacking in fat and albuminoids, are more liable to the disease than children who have been well nourished. Most of the cases occur during the period of the first dentition, but severe cases have been seen as late as the seventh year. In this way the spasm of the glottis may be developed somewhat late in children who early in life have had some convulsive disorder. Boys are more prone to laryngismus stridulus than girls, and, in my experience, their symptoms are more severe. The nervous weakness of rhachitis is an exciting cause of laryngismus stridulus, which must always be associated in an ætiological sense with rickets, for, without the primary malnutrition of the nerve centers, the ganglionic irritability would not be so increased as to permit of the loss of reflex control. The recurrent laryngeal divisions of the pneumogastric nerves which supply the adductors of the vocal cords are the nerves which are excited to increased action by peripheral irritation, usually of some other branches of the par vagum.

The immediate causes of laryngismus stridulus are improper food, indigestion, dentition, excitement, exposure, etc. Pressure against the soft spots of the rhachitic skull is also regarded as sufficient to induce an attack, but this is only in young children, for craniotabes is rare after the first year. Enlargements of the thymus, bronchial, and other glands, as well as hypertrophied tonsils and catarrhal laryngitis, are not usually immediate causes, although they

are in many children evidences of vices of constitution of which rhachitis is the most frequent origin. Fat children are not predisposed to spasmodic croup, except in so far as their fat is due to a deposit in the tissues of imperfectly oxidized material, which deprives the blood of its most important constituent and the growing structures of their pabulum. In other words, these fat children are often rhachitic.

The morbid anatomy of laryngismus stridulus is not understood. Descriptions of changes in the mucous membrane of the larynx and of inflammatory alterations in various organs have been given by different observers. The lungs have been found diseased and the brain has appeared congested. Glandular hyperæmia and enlargement have been mentioned. Investigations as to the state of the nerves and the ganglionic centers have not been productive of definite results. The pathological findings seem to be as unreliable as do the ætiological factors, except when we return to the primary cause of the spasmodic seizure—namely, the rickets—which has produced the weakened inhibition of peripheral irritation. As the laryngismus is a neurosis, the pathology and morbid anatomy are as unsatisfactory as they are in neurasthenia.

The symptoms of the spasmodic croup may be sudden and severe. If the obstruction to the entrance of air is great, the cyanosed and convulsed condition of the child is so alarming that the physician is called in haste, often totally unprepared for the case he is to treat. A child who has been apparently well awakens with a peculiar prolonged hissing or stridulous inspiration. If the spasmodic closure of the glottis is not complete, the inspiratory sound is prolonged and the stridulous effort is interrupted. When the spasm is very severe the sound is heard with the first inspiratory effort, but ceases almost entirely until just at

the end of it. With the spasmodic obstruction the child shows the convulsive character of the disorder by the positions it assumes. The body is thrown in a rigid state with the head extended; the eyes are staring and the veins dilated, while the whole cutaneous surface, by its bluish color, gives evidence of the interference with aeration and circulation. There is a flexing of the fingers and toes, and carpo-pedal contractions and strabismus are not uncommon even in the mild attacks. These contractions are bilateral. The respiratory movements are interfered with by the spasm of the glottis, and atmospheric pressure causes a precordial depression and recession of the lower ribs with each effort at inspiration. The effect of the retarded circulation is shown by the pulse, which is small and rapid, or it may be intermittent. The temperature is not raised unless there is some cause for it in an intercurrent catarrh, disordered digestion, or complicating disease. The paroxysms vary in duration. If the immediate cause be a deranged stomach or some temporary irritation in a child of fair recuperative power, they will not last more than a few minutes. In the mild attacks peripheral counter-irritation will often relieve the spasm very quickly, or the obstruction to the ingress of air may cease suddenly as if the nerve centers had gathered their forces to prevent any further loss of control. The child will have a crying-spell, will appear a little dazed, and then will go to sleep. The severe convulsive paroxysms may be intermittent, but a degree of laryngeal obstruction will perhaps persist for some days, and a return of the convulsions will easily be excited. The danger of the prolonged or severe convulsive paroxysms is the interference with aeration, the congestion of the medullary centers, and the collapse of the lungs, or the weakness resulting from the attack.

The following is the clinical history of a case that recently came under my care:

Henry B., aged three years and six months, German parentage. The seventh child. Dentition began at the twelfth month; then cut seven teeth in one month, which is not unusual in those children where the dentition is delayed. Began to walk and talk about the end of the first year. Head perspired at night and the child was restless. When two years old had a convulsion with the appearance of the first double teeth. The boy was in convulsions and unconscious for seven hours. Since that time he has had a convulsion about once a month, when stomach and bowels were out of order. Never has the convulsions at night, and, if he vomits, is always relieved at once.

Sunday, April 13, 1890.—Had an attack of laryngismus stridulus which was severe. Face was blue and breathing was much obstructed. There were contractions of fingers and toes. On examination the next day, I found the right tonsil somewhat enlarged and a little congestion of the pharynx. There was slight laryngeal obstruction, and at times the effort was prolonged with the peculiar crowing sound. The diagnosis of laryngismus stridulus was made from the history. Treatment with chloral and bromide in an emulsion of castor-oil relieved the child after the second dose. He was given one drop of phosphorized oil, containing $\frac{1}{100}$ of a grain of phosphorus, three times a day, and has done well, with the exception of a convulsion brought on by eating a banana.

This boy's history and photograph bear testimony to the need of inquiring from the mother the precedent health of the patient. The photograph shows a well-nourished boy who bears few evidences of disease, and yet he has had convulsions for a year and a half, and has been a constant anxiety to his mother, who has been told that "the fits would grow on him." It will be observed that the bones of the legs are slightly curved and that the thorax is somewhat indented, but the physiognomy does not show that the boy is at all stupid. The forehead is a little prominent. From the history you will appreciate the following facts, which should aid us in our diagnosis of the causation of

convulsions and laryngismus stridulus: The boy is the seventh child of poor parents; therefore, though he was nursed, it is probable that the milk furnished by his mother was not as nutritious as he required. His dentition was delayed, which is a positive indication that his food did not contain the necessary chemical constituents. The convulsions appeared whenever he was constipated or dyspeptic. The latter shows the catarrh and weakness of the alimentary tract that is one of the first symptoms of rhachitis, the former the want of control of nerve centers due to imperfect nourishment. The boy is bright—somewhat too bright for his age; children of this temperament are apt to be rather dull and stupid as they grow older.

The diagnosis of laryngismus stridulus should not be a source of trouble. There is nothing like the convulsive seizure of the severe form, and the milder attacks are readily separated from the pseudo-membranous and catarrhal laryngitis by the history and an examination.

The treatment of laryngismus stridulus during the paroxysm must be such as to relieve the child from the danger of prolonged apnœa. In the mild attacks, where there is not much weakness of the nervous system, the production of emesis, inhalation of ammonia, the application of cold to the neck, the use of an ice-bag along the cervical spine, the hot and cold douche alternately applied, or a hot bath, will be sufficient treatment at the time, the peripheral stimulation being powerful enough to prevent the continuance of the over-action of the nerve supply of the larynx. When the attack is induced by some indigestible food or by constipation, the administration of an emetic or cathartic is indicated. Routine treatment is not bad when drugs to empty the stomach and bowels are given. The severe convulsive seizures have to be treated promptly and surely. Anæsthesia by chloroform or ether is one of the means of relieving

the alarming symptoms. It is not necessary to carry the narcosis to its full extent. Nitrite of amyl has been used, and it is claimed with good effect.

With the relief of convulsive breathing precautions can be taken to guard against a return of the spasm of the glottis. The stomach and bowels are to be given attention if the convulsion is found to be due to derangement of the alimentary canal. If the stomach is very irritable and the convulsive tendency severe, chloral may be given in enemata. In young children with craniotabes care must be taken that pressure is not made over the soft spots in the skull. As the period of dentition is the time when laryngismus stridulus is often seen, lancing the gums has been regarded as a necessary procedure. The use of the lancet is not indicated, and usually shows that the physician has not studied the case thoroughly enough to understand the cause of the disorder.

Antispasmodic treatment must be instituted to lessen the susceptibility of the nerve centers to afferent impressions. The bromides, especially the bromide of ammonium, zinc, musk, belladonna, antipyrine, chloral, and sulphonal are all good, but each case must be studied by itself and not treated by a drug because it is the latest addition to the materia medica.

The treatment of the constitutional dyscrasia is of the greatest importance, for without an effort made to increase nutrition the administration of symptom medicines will be of no avail.

The need of fresh air, sunlight, and attention to the hygiene of the nursery are to be inculcated on mother and nurse. The diet is to be carefully regulated. If the infant is nursing at the breast of a mother who can not supply her offspring with sufficient nourishment, it should have cow's milk and beef-juice once or twice a day, or else the baby is

to be weaned and be given cow's milk properly prepared. The basis of all food should be the cow's milk so as to insure the fatty and proteid constituents required by the system. Pounded beef and mutton, or the juices from the meat, aid in building up the tissues, and they are great additions in treatment.

Cod-liver oil is one of the most valuable medicinal foods that we have for these cases. Whether it is to be given pure or in an emulsion will depend upon the digestion. When there is susceptibility of the nerve centers to irritation or a rhachitic weakness of the bones, the phosphorus treatment is of service. Anæmic children often require iron, but ferruginous preparations will not take the place of fresh air and good food, and in many cases they do not agree because of the weakened powers of the stomach.

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